



CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

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Job No: CTCE/BBMP/MEW/W.No.14/BC/Bitumen/2017-18

20.06.2017

TEST REPORT ON BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

* Customer	: Asst. Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	: M/s. Mahendra Engineering Works, (Prop. G. Venkatesh), No. 243, 15th D Cross, 2nd stage, 2nd phase, West of Chord Road, Mahalakshimpuram, Bangalore - 560 086.
* Name of Work	: Improvements and asphaltting to 9th and 10th Main Bhuvaneshwari Nagara (left side and right side) 1st Main Brundavana Layout and Cross Roads in Bagalagunte Ward No. 14, Dasarahalli Sub Division, BBMP, Bangalore..
* Reference	: BBMP/DZ/AEE/TDSD/PR/95/2017-18 Dated: 06.06.2017
* Sample ID	: Cross roads between 10th & 11th Main, Bagalagunte, Ward No.14
Technical Reference	: IS 2386 and IRC:SP-11-1984
Date of Testing	: 20.06.2017



GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	43.25	9.16	9.16	90.84	79-100
9.5	35.26	7.47	16.63	83.37	70-88
4.75	70.25	14.88	31.52	68.48	53-71
2.36	62.32	13.20	44.72	55.28	42-58
1.18	55.15	11.68	56.40	43.60	34-48
0.6	53.25	11.28	67.69	32.31	26-38
0.3	44.25	9.38	77.06	22.94	18-28
0.15	32.26	6.83	83.90	16.10	12-20
0.075	35.15	7.45	91.34	8.66	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	36.32	7.69	7.69	92.31	79-100
9.5	44.25	9.38	17.07	82.93	70-88
4.75	68.25	14.46	31.53	68.47	53-71
2.36	70.22	14.88	46.41	53.59	42-58
1.18	62.25	13.19	59.60	40.40	34-48
0.6	46.69	9.89	69.49	30.51	26-38
0.3	33.59	7.12	76.60	23.40	18-28
0.15	36.36	7.70	84.31	15.69	12-20
0.075	45.69	9.68	93.99	6.01	4-10

*Information is furnished by the Customer/Representative.

Note:

- ⇒ The report shall not be reproduced, except in full, without the written approval of the laboratory.
- ⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.
- ⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

Signature
20.06.2017



Civil-tech Consultant

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Job No.: CTCE/BBMP/MEW/W.No.14/BC/Agg/2017-18

20.06.2017

TEST REPORT ON GRADATION OF AGGREGATE

* Customer	: Asst. Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	: M/s. Mahendra Engineering Works, (Prop. G. Venkatesh), No. 243, 15th D Cross, 2nd stage, 2nd phase, West of Chord Road, Mahalakshimpuram, Bangalore - 560 086.
* Name of Work	: Improvements and asphaltting to 9th and 10th Main Bhuvaneshwari Nagara (left side and right side) 1st Main Brundavana Layout and Cross Roads in Bagalagunte Ward No. 14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	: BBMP/DZ/AEE/TDSD/PR/95/2017-18 Dated: 06.06.2017
* Sample ID	: Bituminous Concrete
Technical Reference	: IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	: Hot mix plant, Bangalore
Date of Testing	: 20.06.2017



Total Weight of Sample: 5250 gm

Sieve Size, mm	Weight Retained,	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH 500-18
13.2	730	13.90	13.90	86.10	79 - 100	
9.5	560	10.67	24.57	75.43	70 - 88	
4.75	650	12.38	36.95	63.05	53 - 71	
2.36	590	11.24	48.19	51.81	42 - 58	
1.18	525	10.00	58.19	41.81	34 - 48	
0.600	540	10.29	68.48	31.52	26 - 38	
0.300	510	9.71	78.19	21.81	18 - 28	
0.150	325	6.19	84.38	15.62	12 - 20	
0.075	350	6.67	91.05	8.95	4 - 10	

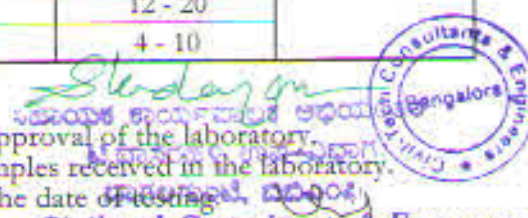
Total Weight of Sample: 5350 gm

Sieve Size, mm	Weight Retained,	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH 500-18
13.2	630	11.78	11.78	88.22	79 - 100	
9.5	660	12.34	24.11	75.89	70 - 88	
4.75	600	11.21	35.33	64.67	53 - 71	
2.36	580	10.84	46.17	53.83	42 - 58	
1.18	600	11.21	57.38	42.62	34 - 48	
0.600	555	10.37	67.76	32.24	26 - 38	
0.300	460	8.60	76.36	23.64	18 - 28	
0.150	325	6.07	82.43	17.57	12 - 20	
0.075	495	9.25	91.68	8.32	4 - 10	

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Job No.: CTCE/BBMP/MEW/W.No.14/BC/Stability/2017-18

20.06.2017

TEST REPORT ON MARSHALL STABILITY OF MIX

* Customer	:	Asst. Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	M/s. Mahendra Engineering Works, (Prop. G. Venkatesh), No. 243, 15 th D Cross, 2 nd stage, 2 nd phase, West of Chord Road, Mahalakshmiapuram, Bangalore - 560 086.
*Name of the Work	:	Improvements and asphaltting to 9th and 10th Main Bhuvaneshwari Nagara (left side and right side) 1st Main Brundavana Layout and Cross Roads in Bagalagunte Ward No. 14, Dasarahalli Sub Division, BBMP, Bangalore.
*Reference	:	BBMP/DZ/AEE/TDSD/PR/95/2017-18 Dated: 06.06.2017
* Source	:	Hot mix Plant, Bangalore
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	20.06.2017



The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshall Stability, Kn	9.60	9.85	9 Kn (min)
2	Marshall flow, mm	2.35	2.65	2 - 4
3	Percent air voids in Mineral Aggregate	3.15	4.25	3 - 6
4	Voids in Compacted Mix	14.25	15.60	13 - 15
5	Percent Voids filled with Bitumen	67.25	68.30	65 - 75
6	Density, g/cc	2.27	2.28	-

*Information is furnished by the Customer/Representative.

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(Signature)
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 ಬಿ.ಎಸ್.ಎಸ್.ಎಸ್. ಕಾರ್ಯದರ್ಶಿ
 ಬೆಂಗಳೂರು, ಕೆ.ಎಸ್.ಎಸ್.
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